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THE JOURNAL OF SCHOOL HEALTH

Devoted to the interests and advancement of school health service and instruction. Your participation by membership is solicited.

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FIELD EXPERIENCES IN HEALTH EDUCATION FOR PROSPECTIVE TEACHERS*

EDWARD B. JOHNS, Ed.D

Associate Professor, School Health Education
University of California, Los Angeles

The American School Health Association Committee, Health Education in the Elementary and Secondary Schools, recently has identified the professional preparation of teachers in health education as one of the major problems facing school health education today. This group of leaders now is engaged in finding ways and means, constructive suggestions and practical guide lines to recommend to the Association "how best to improve the preparation of classroom teachers and school health educators."

Since World War II there has been a tremendous increase in the number of teacher education institutions offering curricula to prepare school health education personnel. The number today is estimated to be between 40 and 45 institutions of higher learning. At the same time, many courses, or units of instruction, have been organized so that the classroom teacher may assume responsibilities in achieving the health education objectives of education. This trend is significant and heartily endorsed. It is a positive trend and one that it is hoped will continue to expand in the future.

Present-Day Challenge to Teacher Education. The challenge to teacher education personnel today is embodied in this question: Are we providing prospective teachers, including school health educators, with the kinds of experiences that help them to change behavior of children and youth for improved living? This is a significant aspect of the methodology employed in the professional preparation of teachers for health education.

Essential skills involved in learning and the teaching-learning process are the stock in trade of the school health educator. It is absolutely necessary, therefore, that functional experiences be provided the prospective health teacher and/or health coordinator.

*Presented before the American School Health Association, October 11, 1954.

Helen Starr, of the Minneapolis Public Schools, in a current article, has made a plea for a "health-educated" rather than a "health-informed" pupil. She describes a health-educated pupil as one "who translates the understandings, attitudes, and skills learned in the classroom into his daily life." She makes it plain that "the way in which the teacher conducts the health class is the key to a successful health program". She states further, "There needs to be constant opportunities to practice desirable health behavior."[1] The emphasis is on pupils participating in those purposeful activities that have meaning in everyday life.

Definitely we can agree with Dr. Starr. However, we must go a step further, and add that the best way to assure health-educated pupils is to prepare "health-educated" teachers, including school health educators.

It is easy to prepare teachers by imparting facts through lecture courses which result in the accumulation of information. However, evidence from school administrators indicates that this practice does not produce the best type of teacher. What is needed then is to accomplish the more difficult task in teacher education, that of providing the prospective teacher with more direct experiences.

Direct experiences refer to continuing contacts with children, youth and adults in first-hand activities in schools and in the community. These along with professional courses make possible the integration of theory and practice. They are experiences that develop understandings, convert information into knowledge, develop positive health attitudes, as well as equip students to work in the community. It is our premise in the preparation of teachers for health education that laboratory experiences, including field experiences, contribute in a large measure to the modern concept of the "health-educated" professional person. Let us examine further the case for professional laboratory experiences.

What Is the Meaning of Laboratory Experiences? The present-day concept of school and community laboratory experiences in education is clarified by examining the definition prepared by a subcommittee of the American Association of Teachers Colleges. This definition is as follows:

> Professional laboratory experiences include all those contacts with children, youth, and adults (through observation, participation, and teaching) which make a direct contribution to an understanding of individuals and their guidance in the teaching-learning process.

1 Starr, Helen. "Today's Pupil—Health Informed or Health-Educated?" **Journal of Health, Physical Education, and Recreation.** 25:18-22, 58, September, 1954.

The subcommittee expressed the view that education courses and professionally treated content courses, such as health education in the preparation of health educators, should include professional laboratory experiences. These experiences can be classified into three phases: (1) activities prior to student teaching, such as observations and participation in "on-going" programs; (2) student teaching; and (3) community field experiences.

The Unique Contributions of Laboratory Experiences. The unique contributions of laboratory experiences are explained in a statement of principles formulated by the American Association of Teachers Colleges in its 1948 Report. The first principle identifies three specific contributions, as follows:

> (1) An opportunity to implement theory. Students preparing to teach need continuous opportunity to check their understandings of concepts by putting them into action; (2) a field of activity which through raising questions and problems helps the student to see his needs for further study; (3) an opportunity to study with the student his ability to function effectively when guiding actual teaching-learning situations. It is only as the student deals with real people in school and community that he can test his ability with the human factors in educational situations.[2]

A review of the present-day literature gives additional evidence of the importance of laboratory experiences. For example, Florence Stratemeyer of Columbia University states:

> The need for direct experience to give meaning to ideas and to develop understanding that goes beyond verbalization to the ability to implement ideas in action suggests a professional program in which direct experience is an integral part of each of the four years of college.[3]

Public school administrators throughout the country are demanding young teachers who are able to do a better job of working with pupils and with other staff members. Commissions on teacher education and professional standards, accrediting agencies, and State accreditation procedures all indicate the need for more and better laboratory experiences.

Outcomes Derived from Laboratory Experiences. Numerous administrators, teachers, teacher education personnel, and students agree that laboratory experiences result in positive outcomes such as the following: (3, 6, 10, 12, 13)

(1) A realization that the school is a part of the community, not all of it.
(2) An understanding and appreciation of the over-all community health program.

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2 Subcommittee of the Standards and Surveys Committee of the American Association of Teachers Colleges. **School and Community Laboratory Experiences in Teacher Education.** American Association of Teachers Colleges, 1948, p. 7.

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3 Stratemeyer, Florence B. "The Expanding Role of Direct Experience in Professional Education." **Off-Campus Student Teaching, Thirtieth Yearbook of the Association for Student Teaching,** Lock Haven, Pennsylvania, 1951, p. 10.

(3) Recognition of the need for basic curriculum changes resulting from an increased awareness of individual and community needs.

(4) Improved school and community cooperation. Educators find community agencies most cooperative in developing laboratory experience programs.

(5) Improved instruction in school. Teachers are better prepared to go into the classroom.

(6) Improved participation in the community. Administrators report that teachers participate in community activities to a greater degree than those not having laboratory experiences.

(7) As increased competence in working cooperatively with others.

These are only a few examples of desirable outcomes of laboratory experiences.

Kinds of Laboratory Experiences Utilized in Health Education. A description of kinds of laboratory experiences is drawn from the speaker's own experience at University of California, Los Angeles. A laboratory experience committee has been responsible for planning, coordinating and conducting health education, physical education and recreation laboratory experiences. Through cooperative effort with personnel from these fields, from the School of Education, and representatives of agencies, a joint program has been developed. One of the first functions was that of defining of responsibilities for (1) the University; (2) the agencies; and (3) the student. As a result, supervisors from the University, and agencies understood their functions as do the students. The following are examples of experiences utilized:

A. Pre-student-teaching experiences:

(1) Observations of classroom teaching in elementary and secondary schools.

(2) Studies of growth and development through observation and case studies of children and youth.

(3) Observations and interviews with a health coordinator.

(4) Visitations of school health councils and student health councils.

(5) Participation in environmental surveys of healthful school living in actual school situations.

(6) Participation in community health programs, i.e, tuberculosis x-ray survey, venereal disease control programs, and the like.

(7) Visitation to health departments, etc.

B. Student-teaching experiences:

(1) Teaching a health education class and a minor, a related field such as life science or social studies.

(2) Work with a health coordinator.

(3) Serve as adviser to a student health club.

(4) Participate in activities of a community coordinating council serving the school district.

C. Field Experience:

(1) Observation, interviews and participation, as indicated under pre-student-teaching.

(2) Participation in a field experience course offered for two semesters, of two units each, available at senior and graduate years. Participation includes a study of the over-all community health program through visitations, interviews, and work experience. A work experience is scheduled for a block of time in one community agency.

For the past two years, students have engaged in a community self-survey of community needs in a particular health district, West Los Angeles. This survey has been sponsored by the West Los Angeles Coordinating Council under the direction of the District Health Officer, a health educator from the Los Angeles County Tuberculosis and Health Association, and the University supervisor of health education field experiences. The students conducted a pilot study of needs in the district as a preliminary measure which paved the way for the over-all community survey.

At other times, students were active members of the Health Education Study Committee of the Community Welfare Planning Council of the Los Angeles Metropolitan Region. As such, they participated in the planning, study, and problem-solving considerations of the Committee.

This is a brief description which illustrates the kinds of experiences in which students may engage in school and community endeavors.

Laboratory Experiences in the Preparation of School Health Educators. What is the present situation relative to the use of laboratory experiences in the preparation of school health educators throughout the country? A partial answer to that question may be obtained in a summary of the findings of a study made by the speaker and Dr. Camille Brown, of the University of California, Los Angeles, faculty. At the request of Dr. H. F. Kilander, this study was undertaken for the Second Conference on the Professional Preparation of Students Majoring in Health Education, January 5-9, 1953. The committee of two developed a questionnaire based on the standards reported in *School and Community Laboratory Experiences in Teacher Education,* American Association of Teachers Colleges, 1948. The Report of a *Study of the In-Service Education and Field Service Program of Member Institutions,* American Association of Colleges for Teacher Education, 1953, also served as a guide in conducting the study.

The purposes of the study were to (1) indicate present practices; and (2) identify present problems. The findings were based on thirty-four health education major curricula. Data were classified under these headings: Experiences prior to student-teaching; Student-teaching; and Community field experiences.

The following current practices of conducting laboratory experiences are summarized briefly:

Experiences Prior to Student-Teaching. Thirty-one representatives responded in this category. Replies indicated that in al-

most each case the student had an opportunity to make observations before student-teaching (30 yes, 1 no). A majority had an opportunity to evaluate their laboratory experiences and offer suggestions for further development (19 yes, 12 no). In most instances, the laboratory experiences were selected to meet the individual needs of the student, and a variety of experiences were utilized. Laboratory experiences developed out of the student's college courses and the results of the experiences were capitalized on in his class work. Almost all of the institutions provided for proper orientation to the school before the student began his student-teaching assignment.

Student-Teaching Experiences. In almost every case the student-teaching center was selected according to the needs of the student (23 yes, 7 no,). A major problem identified was the lack of good health programs in the public schools. However, twenty institutions replied that their students taught in a separate health education course. Of these,. nineteen stated that their students taught a separate course five days a week. More than half of the institutions indicated that their students participated in health education experiences organized in a core curriculum area, such as "social living," "healthful living," and the like. Twenty-five out of thirty-one respondents signified that their students participated in health education experiences in addition to classroom teaching, such as working with the health examination, a health council or committee, and/or a community agency.

Various student-teaching patterns were described. Eighteen institutions reported that their student teachers lived in the community from nine to eighteen weeks. Thirteen of these experiences were on the secondary level and five on the elementary level. Only eight specified that student teachers taught one hour per day, from twelve to thirty-six weeks. Ten answered that students taught three hours per day from nine to eighteen weeks. A large majority (21) responded that student-teaching was done in a single assignment, while six had two separate assignments—one in health education and a second in another subject. Three used more than two assignments.

Community Field Experiences. Thirty-four institutions responded in this category. Thirty of the Thirty-four major curricula included community field experiences. These experiences ranged from a few observations of community agencies to a six- to eight-unit semester course. Half the institutions (17) provide a course

entitled "Field Experiences in Health Education" or its equivalent. A majority stated that field experiences in the community were organized during one year; however, a number replied that field experiences progressed through two or three years. Most field experiences (27) were conducted during the senior year, with the junior year second (16), followed by the fifth year, (14) Of the thirty-four respondents, twenty-six reported that health education major students participated both in student-teaching and in community field experiences.

Work experience in a voluntary health agency was rated next to observations as a predominant type of community field experience. Work in an official health agency followed as the third type most frequently mentioned. Only a few institutions assigned students to a coordinating council or a professional society. Two units or hours was the most common pattern of credit earned by students in field experiences.

A large majority (20) signified that their students received inadequate field experiences, while eleven replied that they provided adequate experiences. Twenty-six out of the thirty-four responded that they planned to incorporate additional field experiences in the future.

The second objective of the study was to identify problems concerning laboratory experiences. Selected problems reported by representatives of the participating teacher education institutions are as follows:

Problems Pertaining to Pre-Student-teaching Experiences:

(1) What are the pre-student-teaching experiences which could be unified into a sequence together with the actual student-teaching or field work off campus?
(2) How can we obtain greater diversity of pre-student-teaching experiences?
(3) How can we utilize laboratory school experiences where a laboratory school does not exist?
(4) How can we develop laboratory experiences in the public schools?
(5) How can we overcome the lack of opportunity in public schools for purposeful experiences for students?
(6) How can we include laboratory experiences in an already full schedule?

Problems Pertaining to Student-Teaching:

(1) How can we develop opportunities for full-time student-teaching in health education?
(2) How can we develop greater opportunities to combine student-teaching and field experience during the same quarter or semester?
(3) How can we overcome the lack of good teaching programs in the schools?
(4) How can we provide necessary health education experiences with a limited number of health educators in the field?

(5) How can we change the courses of study at the secondary level which are at present physiology or hygiene rather than health education?

(6) How can we develop understanding by school administrators of the importance of health education?

Problems Pertaining to Community Field Experiences:

(1) How can we best organize field experiences?

(2) How can we obtain a greater variety of field experiences?

(3) How can we find additional time for field experiences?

Selected Conclusions from the Study. It was apparent from the findings that:

(1) There is need for improved health education programs in the elementary and secondary schools in order to provide purposeful laboratory experiences for health education major students.

(2) A major problem is the lack of understanding of the school health program on the part of school administrators.

(3) The majority of institutions, in general, are utilizing procedures prior to student-teaching and during student-teaching that are in accordance with accepted educational standards.

(4) More than half of the institutions have a course titled "Field Experiences in Health Education," or a block of time in other courses for actual work experiences in the community; the remaining institutions, however, are depending upon observation of community health agencies as their chief type of field experience.

(5) There is need for the inclusion of additional laboratory experiences and for improvement in the quality of present experiences in the three categories: experiences prior to student-teaching, student-teaching, and community field experiences. The need is particularly great in regard to community field experiences.

(6) A large majority of institutions state that they plan to increase their offerings in field experiences in the near future.

Summary. An attempt has been made in this paper to (1) indicate the need for purposeful experiences in the preparation of teachers in health education; (2) explain the meaning of laboratory experiences, including field experiences, and describe the kinds of activities and desirable outcomes achieved; and (3) present available data on present practices and current problems relating to laboratory experiences utilized in the preparation of school health educators.

Conclusion. In conclusion, a plea is made for all persons concerned with health programs in schools, colleges, universities, and communities to aid in the preparation of the "health-educated" professional individual, whether he be a classroom teacher or a school health educator.

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STUDENT HEALTH COUNCIL

DELPHA HAYS WHITE, R.N.

School Nurse, Park Rapids Public School
Park Rapids, Minnesota

Two years ago the need of some assistance for the school nurse became apparent. Consolidation of school districts required the nurse to spend more time away from the office. Among the problems to be solved was one of the sick child remaining long periods alone, with no one to get him home or to notify the parents. The problems were discussed with the school principal, who suggested that I use student help.

We called for volunteers to help in the Nurse's Office. From the group that responded we chose five girls who were assigned to spend one hour apiece daily in the Nurse's Office and five girls to work as substitutes. A sheet of instructions was set up to guide the girls on duty during the Nurse's absence. They were taught to do simple first aid, under direction, to keep the sick room and the dressing table in order, and to arrange for care of sick students, as per instructions with nurse or other responsible adult on call. Parents were notified when the teacher felt this was necessary. One girl was assigned to clerical duties. This plan worked very satisfactorily for the year, and the girls and the nurse felt it had been worth while.

The next year we planned to keep in closer touch with the entire volunteer group. When the call was made, we asked for students interested in any phase of nursing education. It seemed that a Future Nurses Club might be the answer, so we called the girls together and explained what we had in mind. They were enthusiastic and after some discussion they elected officers and decided to have programs. They purchased pins which they wore proudly. The Nurse's office assistants were chosen from this group. The secretary wrote to the students who had attended school and were now student nurses and invited them to talk to the club when they returned home. We asked them to come in uniform. We were fortunate to have some student nurses in a Practical Nurse School, in a three year program and in a four and one-half year program. They all accepted the invitation. Their talks and the question-and-answer periods were well received by the club. In all cases it was informative and enjoyable. I am sure the Student Nurses were pleased at the invitation. A copy of the invitation letter had been sent to the Superintendents of the respective hospitals and a letter

of thanks with comments was sent to each, following the Student Nurse's appearance.

This year we felt we were ready for a broader program for this group. We wanted a way to contact the student body with health information. I discussed a Student Health Council plan with the school principal who seemed interested in some such plan. We felt the plan could be justified from an educational standpoint.

Permission was granted to form a student health council, and then problems on organization and selection of personnel began to present themselves. We felt that members should be volunteers interested in health work, so we planned to use students already in the F. N. C. and called for additional students who might be interested. We felt they must be responsible members of their group and be able to present the information in an acceptable manner to their own classmates. We needed to find students who could reach all other high school students. This meant that they must be chosen from English or Social Studies classes since these were the only classes where all students were enrolled during the entire six years of high school.

I consulted the English teachers who were very helpful and willing to allow time in their English classes for the council members to present their material. Each English teacher was asked to call for volunteers and to pick the student he felt would best serve on the council. We were careful not to choose students who had too many other extra curricular activities. From this group the most responsible were assigned as nurses' assistants. We were granted school time for our meetings and a group of twenty met with the nurse for organization into a student health council. The nurse explained what the council would be expected to do. Each was given an opportunity to withdraw if she felt for any reason that she did not wish to serve.

I then tried to impress upon them the importance of the work they were called upon to do and the need for getting it done on time and in a business-like way. I promised them there would not be a meeting called unless there was work to be done and for that reason I insisted that everyone be present at every meeting. The first big job was to get health census records, including records of diagnostic tests, immunizations, past illnesses and the names of private physician and dentist. I have found that students were generally cooperative in giving information if they knew what we wanted and why. The "why" is important.

We called our first work meeting at which time we discussed the work to be done and how best to go about it. The students gave many good suggestions on how the work could proceed. We passed to each member of the council the number of census slips needed for their individual rooms. Then together, we filled out the census slip blank for each member, explaining why each step was necessary. The council members then returned to their classes, gave the slips to the students of their group, completed and returned them to council representatives. The council member checked them for accuracy and then turned them in to the nurse. The percentage of records returned by this method was far greater than with any other plan that I have tried. In checking with the teachers later, I found they were surprised how well it worked and how serious the council members were in doing their job. Some of the teachers remarked that they had learned something new about the health census.

We have our dental clinic at the school each year when the dentists come to the school to inspect all the students' teeth. The council members again distributed the cards and had their classmates fill in the top part of the card before they came in to the dental clinic. On clinic day students brought their cards with them to be collected at the clinic. After information had been recorded on the permanent record files, the Council was again given the job of getting the cards back to the students and explaining the notation on the card.

Elementary teachers were asking help in weighing and measuring their students. Council members were assigned free hours to assist in this work.

When our Mantoux testing came up, the council members were well acquainted with what they had to do. They distributed the consent slips to the students a week before the clinic and returned all signed consent slips together with a master copy of all the students in their room, showing the reported positive reactors and the reasons given for those not taking the test. It was then possible for the nurse to have a conference with all students who showed a history of reaction to former tests. On the day of the clinic, council members also assisted in acting as monitors. This kept an even flow of students at the clinic. As a result the clinic went very smoothly.

Perhaps the best example of what a student health council can do was illustrated recently when one of our neighboring towns had a real diphtheria scare. We had no cases in or near our

town and our school children were well immunized since we have had a program to protect children from diphtheria and small pox regularly over a period of eight years. Nevertheless the students and parents alike were worried and the health office was besieged with telephone and office calls from parents and students. I consulted with the School Doctor who felt it wise not to change our clinic dates which would be in about six weeks.

I called a meeting of the Student Health Council and explained the situation. I gave them what up-to-date information I had and thus stopped rumors of new cases. They were asked to return to their respective classes and give this information to the student body and ask them to tell their parents. A student was to give his name to the council member if there was a question of his immunity status. The council member checked the student's record and he was advised to go to the family physician, if this seemed indicated. This bit of information passed on by the council worked like magic. Almost over night the school returned to normal. I feel this was indeed a valuable contribution.

The School Health Department has worked very closely with the English Department, issuing bulletins of explanation to the teacher when the council had something for the class. In all, the whole thing has been a cooperative effort between School Health Department, English Department, and the students which has given all a better understanding of everyone's problems by working together.

We are aware that our Student Health Council has room for a great deal of improvement. We have worked rather slowly since we were unable to find a guide to follow, but with the many helpful suggestions we have had from both the students and faculty, I am sure most of our problems will be solved.

In evaluating the program I feel, the health service has done a better job, and we have more effectively reached the larger enrollment in our school as shown by student response. I am sure the majority of the students serving on the council have had a real educational experience from this work. They have gained stature in the class because they have self-confidence; as one member put it: "I am not afraid to talk to the class about these things because I know they are important."

I feel sure they have a new concept of the meaning of the school health program that will gradually carry over to the student body, making all students more health conscious and helping them to make better use of the available health service.

THE SCHOOL HEALTH COORDINATOR

WILLARD W. PATTY

Dean, School of Health, Physical Education, and Recreation
Indiana University, Bloomington, Indiana

Why are school health coordinators needed? What do they do? The answers to the first question are rather uniform. The actual duties performed by coordinators vary according to differences in school situations and to philosophies concerning the health program controlling school organization and procedures.

One need for a school health coordinator is caused by the multiplicity of activities demanded by present-day elementary teachers. The qualified coordinator can help them with their health education responsibilities by furnishing them with appropriate health educational materials. Almost all agree that health education lessons should not be confined to a single health text book. The busy elementary classroom teachers cannot reasonably be expected to keep informed concerning new health education bulletins, plays, charts, models, audio-visual aids, tests, and suggestions for health planning which have become available from time to time in this rapidly changing field. The coordinator with special training and with the opportunity and time to keep informed concerning developments of health education materials and community resources can save time for many busy teachers and help them to do better teaching for health.

Another need is for a coordinator to serve as liaison between secondary teachers who have opportunities to do health education by correlation. Among such teachers are those of general science, biology, social studies, home economics, and physical education. The coordinator may help to prevent unconscious and wasteful overlapping between such courses and the special health education course. He may assist in preventing possible conflicts in facts and principles presented by these various teachers. He may stimulate teachers to make effective use of opportunities for teaching by correlation.

A need closely associated with the liaison function heretofore mentioned is for cooperative health education supervision. The school health coordinator may:

1. Assist teachers in planning interesting and appropriate lessons for health. His more extensive health education training should enable him to make valuable suggestions—particularly to inexperienced teachers.

2. Synchronize the health education programs of the various grades and of secondary subjects where health education can be done through correlation. If such teaching, together with special secondary health education courses and the informal educational experiences of health services, can be formed into an inclusive, graded, and non-overlapping pattern, the effectiveness of the total health education program of the school will be enhanced.

An additional need for a health coordinator is due to the fact that most schools, which have a school health service program, have only the occasional services of part-time physicians, nurses, and dentists or dental hygienists.

The competent school health coordinator may do much to make the health services of these part-time school employees more valuable. Among such activities the following may be considered typical:

1. Plan with the school administrator, teachers, and parents for the "summer roundup."

2. Establish favorable contacts with local practitioners in the medical and dental professions so that the school health program is understood and coordinated with private professional practice.

3. Prepare the school staff, pupils, and parents for special health service programs in the school — such as health examinations, immunizations, daily health inspection, special nutritional programs.

4. Insure follow-up of examinations so as to secure corrections by family physicians and dentists, or through social agencies and clinics for the indigent.

5. Promote the use by teachers of the results of health examinations so that appropriate individual adjustments for pupils needing them may be made. The coordinator may save much time of physicians, dentists, and nurses by doing preliminary study of such records so that the most valuable use of the interpreting and advisory time of health service specialists may be made when they are available.

6. Relieve the busy school administrator of some of the details of his health responsibilities for the school. He may assist in keeping the school library supplied with the best available health reference materials. In some situations he may be charged with some of the responsibilities for supervising the cleanliness, heating, and lighting of classrooms and the auxiliary spaces of the school building such as: locker rooms, shower rooms, swim-

ming pool, cafeteria, corridors, and auditorium. He may be partially responsible for eliminating accident and fire hazards about the building and grounds.

He may assist with problems concerning children who are ill when the school does not have a full-time nurse. In such instances he might be responsible for contacting parents who should come to take the sick child home or to the physician. He may be responsible for having sick pupils removed from classrooms to be placed in isolation until the physician, nurse, or parent is called and arrives.

7. He may give first aid when the school has no nurse or physician available at the time. The school health coordinator should be qualified as a first aid instructor and be able to give in-service-training for teachers. He could be responsible for making certain that first aid kits are properly distributed about the school plant, and that their supplies are replenished at proper intervals.

8. He may help to contact representatives of local public and voluntary health agencies and to establish desirable cooperative working relationships between them and the school health program.

Who is this school health coordinator? It may be a woman or a man. It may be a nurse with extended education as a health educator who has made herself familiar with school organization and effective ways of dealing with teachers and others concerning teaching methods and materials. It may be a man or a woman who is trained as a health educator and is therefore acquainted with school procedures and with public health personnel and programs. It would be excellent to have a physician who had studied educational organization and public health programs — only there seems to be little chance that any appreciable number of such physicians will be available within the forseeable future for such coordination work. If the present shortage of physicians and nurses continues, it is apparent that the chief hope of developing satisfactory health programs in our schools is to train and employ "lay" school health coordinators so as to "make the most" of the limited time of technically trained physicians, nurses, and dentists available — and to integrate the health education program.

The position of health coordinator does not compete nor conflict with those of school nurses, school physicians, and school dentists. Even in very large schools which may have full-time nurses, physicians and dentists the work of a coordinator is needed. The special health service staff member's time is too limited and too

expensive to have them spend most of their time in educational and promotional activities for which they have little interest and little or no professional preparation. Without a school health coordinator the time of the health service staff for the special technical services, which they alone can give, is greatly reduced. It is good economy in administrative practice in schools to have a trained health coordinator multiplying the value of the technical services of school physicians, nurses, and dentists at a salary less than the average necessary for competent school health service personnel.

Moreover it is unrealistic to think that many individual schools will have full-time physicians, nurses, and dentists. Many schools have no health service staffs, even on a part-time or occasional basis. It is hoped that the time is not far distant when each school will have at least part-time nursing services and the occasional help of a physician and dentist. Probably the typical school situation, at present, is actually that of having occasional visits from a county nurse, and the occasional help of the local medical society and local dental society for special projects such as dental examinations, immunizations, and responses to emergency calls. Under such circumstances the work of a school health coordinator is of utmost importance.

A school health coordinator in individual large schools and in small school systems can "team up" with part-time physicians, dentists and nurses to develop and operate an effective school health program. It should be recognized that the exact nature of the duties of a school health coordinator will vary according to circumstances. Among important factors which will cause this variance are: (1) the nature of the coordinator's technical and professional preparations, (2) the philosophy concerning the health program which permeates the school, and (3) the kinds of health service personnel employed and the amount of their time available in the school.

It is apparent that, in schools or school systems employing adequate health service personnel, the coordinator will specialize in helping busy teachers in related areas with correlation problems. In schools with little or no health service personnel, he will need to devote much time to arranging for family physicians to examine children and to recording results on standard forms for school use. Where there is no school nurse the coordinator will need to assume a major responsibility in furthering the remedial

follow-up program. Similar adjustments would be appropriate concerning other phases of a well-rounded school health program.

The provision of a qualified health coordinator for individual large schools, for the schools within a small city, and for the schools of a county, promises to contribute to the solution of the health problems of our schools.

* * * * *

HIGH SCHOOL ATHLETICS AND RHEUMATIC FEVER

To the Editor:

A 16-year-old patient had rheumatic fever with cardiac dilatation and murmurs, starting in December, 1952. He responded well to rest and cortisone and recovered with no apparent residual damage. The heart has returned to normal as far as can be determined by a cardiologist. He has no evidence of recurrence. He is in a small school where athletics are important, and he is anxious to play football and basketball. Is there danger of cardiac damage from either of these sports in his case? He is quite well adjusted emotionally.

Jack C. Dysart, M.D., Sterling, Kan.

Answer—It is generally agreed that a normal heart cannot be strained by physicial exertion. In the case of a 16-year-old youth who had undoubted rheumatic carditis in December, 1952, however, one could not consider the heart to be normal, in spite of a normal physical examination at the present time. Therefore, it would seem to be good judgment to rule against participation in football and basketball. Competitive athletics require not only a sound body but fitness or "condition" as well. This latter characteristic is the ability to recover promptly from strenuous exertion. The pressure of competition encourages participants under certain circumstances to disregard symptoms of fatigue, pain, or dyspnea and to exceed their limits of recoverability. In spite of the immediate emotional reaction this young man might have, it would be better to direct him into a supervised physical education program where pressures of competition would not be great and to help him achieve success in some field other than athletics.

—C. H. Keene

NUTRITIONAL NEEDS OF SCHOOL CHILDREN*

AUSTIN E HILL, M.D., M.P.H., F.A.P.H.A., F.A.S.H.A.
Director of Health, Houston Public Schools, Houston, Texas

A school child's diet is probably the most important single factor affecting his health today.

More information is now available on dietary habits of school children than for any other age group. Food surveys have been made of millions of school-age children in the United States, yet, fool-proof methods of establishing good eating habits are not available.

Poor nutrition is not solely an economic factor,[1] because many families in the lower income levels are well fed. Only 35 percent of all school children in this country have good diets despite the availability of sufficient food. The problem that faces us today is one of educating children, parents, and teachers as to what constitutes a proper diet.

An adequate diet for school children must contain sufficient calories to satisfy the basic metabolism of the body plus the loss of energy through exercise, play, and work, plus an amount necessary for normal growth. It must contain proteins, carbohydrates, fats, minerals, vitamins, and water in proper proportions, and the food must be well prepared, tasty, appetizing in appearance, nutritious, and served in such a manner that it can be easily eaten.

Inadequate nutrition interferes with normal growth and development of school children. This may be due to an insufficient or inadequate diet or it may be that the child does not or cannot assimilate food because of some physical, emotional, social, or hygienic interference.

The malnourished school child looks fatigued, anemic, has a poor posture, has small flabby muscles, a flat chest, and protruding abdomen; he feels weak, tires easily, lacks endurance, cannot concentrate, appears lazy, and his finger nails, mouth and eyelids are pale. Usually he has a mouth full of decayed teeth. He is unable and unwilling to perform work duties at a fast rate for long periods. He usually has no drive and no initiative. Productivity is lessened. There is lack of interest, increased irritability, and the malnourished child is easily discouraged. His tissues are thinner than normal, containing fewer layers of cells. Cold is not well tolerated, but tolerance for heat is increased.

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*Presented before the Twenty-Eighth Annual Meeting of the American School Health Association, Buffalo, New York, October 11, 1954.

Protein is the most important constituent of anyone's diet and it is the most prevalent deficiency in the diet of school children. Proteins are required to develop new tissue, to repair old tissue, and to maintain the structure of every living cell. School children must have an abundant of protein readily available for normal growth.

It is important for all of us to know that there is, in the body, a steady loss of proteins and there must be a constant and adequate daily intake to replace this loss. The body cannot store excess proteins as it does carbohydrates and fats. When an adequate amount of carbohydrate and fat, however, are not available to the body, deterioration of the protein structure begins. Body tissues that are strong, complete, and healthy are less likely to break down under stress, strain, illness, and injury than are weak, poorly constructed tissues.

The fat in one's daily diet is necessary for energy and fuel for warmth. Excess fat is needed in cold climates. One should consume a daily minimum of 30 grams of fat. In our American diet today, millions take well over 100 grams daily. The amount of fat intake usually increases with the family income. Animal fats are a rich source of vitamins A, D. Vegetable fats are equally as good in food value but not in vitamins, unless they have been added.

Fats and carbohydrates are interchangeable as sources of energy. Carbohydrates are easily available as an economical source of energy comprising from 40% to 70% of one's daily diet. School children require daily, from 50 grams to 100 grams of protein, about the same amount of fat and a sufficient amount of carbohydrates to round out the child's daily caloric requirements. Using food from all sources, table I may serve as a guide to quickly approximate the total daily caloric intake required for children.

A child who is from 10 to 12 months old needs about 1000 calories. For each additional year, add 100 calories. During his second year, or one year old plus, he needs 1100 calories. Thus, a child who is 2 years old needs 1200; 3 years old, 1300; 6 years old, 1600; and by the time he is 9 years old, he needs 1900 or about 2000 calories. Girls continue at about this same rate until a maximum is reached at age 15. By this time, a girl needs about 2500 calories or about the same as a young adult woman. To approximate the caloric needs for a boy between 10 and 19 years, double his age and multiply by 100. For instance, a boy, age 17, will need approximately 3400 calories.

TABLE I *

Age	Calories Required Girls and Boys	Age	Calories Required Girls	Calories Required Boys
10-12 months	1000	10 years	2000	2000
1 year	1100	11 years	2100	2200
2 years	1200	12 years	2200	2400
3 years	1300	13 years	2300	2600
4 years	1400	14 years	2400	2800
5 years	1500	15 years	2500	3000
6 years	1600	16 years	2400	3200
7 years	1700	17 years	2400	3400
8 years	1800	18 years	2400	3600
9 years	1900	19 years	2400	3800

Double the age x 100

* Interpolated from Recommended Dietary Allowances—Revised 1953.

The protein and caloric need for school children compared with that of certain adults are shown in table II. The diet of a school child at any age can be compared with that of some adult. For instance, children from 7 to 9 years of age need roughly the same as that of the standard middle-age woman.[2] Children 10 to 12 years old, need more calories and more proteins than their mothers, or an average woman school teacher, the school nurse, or the school cafeteria operators. These women, therefore, should know that children past the first grade must have about as much food as they themselves eat and that the day of half proteins and child's plates should be at an end.

A boy, 15, needs more food than his man teacher or his coach and a girl, 15, needs an amount equal to that of a pregnant woman. Almost all school children actually need more food than their parents, which is very difficult for adults to understand.

Minerals are important, especially for growing children, and like proteins, we need a continuous daily supply. Sufficient minerals must be readily available to help the proteins build the new structures of growing children as well as to supply the need for normal metabolism. During this period of body growth, the blood must grow also to keep pace with the rest of the body. Boys and girls who have reached the age of puberty need additional minerals, especially iron and calcium.

Vitamins are quite plentiful if a variety of adequate foods is available. Green vegetables, fruits, and milk have been termed "protective foods" because of the vitamins and mineral content. A synergistic mixture of vitamins in proper quantity is essential or symptoms of vitamin deficiency may result.

TABLE II

COMPARISON OF DIETARY NEEDS OF SCHOOL CHILDREN WITH CERTAIN ADULTS*

Age of School Student and Grade Levels		*Grams of Protein Required*	*Total Calories Needed*	*Adults Whose Dietary Needs Closely Approximate That of the Corresponding School Student*
5-6 years Boys and Girls Kindergarten & First Grade		50	1600	Almost the same as women school teachers age 65 and weighing 100 to 120 lbs.
7-9 years Boys and Girls Second, Third & Fourth Grade		60	2000	Almost the same as middle-age women; school teachers, school cafeteria workers, school nurses, mothers, etc., weighing around 120 lbs.
10-12 years Fifth, Sixth & Seventh grade	Boys	70	2500	The student's protein needs exceed that of an average man or woman and the caloric needs equal that of young women weighing 120 to 130 lbs.
	Girls	70	2300	
13-15 years Junior High & Beginning High School	Boys	85	3200	Student's protein needs exceed but caloric requirement is about the same as that of his father, coach, physical education teacher, etc., of average size.
	Girls	80	2500	About the same as a pregnant woman of average weight.
16-19 years High School and College	Boys	100	3800 up	Protein requirement about the same as lactating women and other adults who are under stress: For instance, major surgery, burns, severe injuries, severe infections, fractures, etc. The caloric requirement may equal or exceed that of a man doing hard labor.
	Girls	75	2400	About the same as a pregnant woman whose weight is 100 to 110 lbs.

* Interpolated from Recommended Dietary Allowances—Revised 1953

Many school children do not drink enough water during school hours. Water fountains are not regulated properly, sometimes the height of the fountain is not proportioned to the height of the child, the lines are long, fountains are few, and time is short. One millileter for each caloric of food is the standard for water daily intake. In warm climates exercise causing excess perspiration frequently calls for more water for school children than for adults.

Life, each day, should begin with a good breakfast. Tuttle, et al, [3-4-5] have demonstrated that a morning meal of ordinary breakfast is essential for peak performance. They have also shown that when adults ate no breakfast, there was a decrease in work output, an increase in fatigue and tremor magnitude, and during strenuous exercise the men subjects complained constantly of hunger, experienced dizziness, nausea, and sometimes vomiting. One would expect school children to react similarly.

A breakfast of high carbohydrate-low protein content is followed by a low blood sugar level between the second and third hour, and is accompanied by sensations of hunger, lack of energy, and a general let-down feeling, but a more constant blood level is maintained when the breakfast contained larger quantities of proteins, whether of plant or of animal origin.[6]

School children need from four hundred to five hundred calories including at least 15 grams of protein for breakfast. Unless a school child eats at least three foods rich in protein at each meal, he is not likely to attain the full recommended daily allowance of protein by bed time. Students who eat a poor breakfast will feel the effects by mid-morning, making study, class attention, and play difficult. Teachers who practice poor eating habits will fall victim to this same let-down feeling which may give rise to quick tempers, strained teacher-pupil relationship, and unavoidable conflicts in the classroom.

Good school lunches are just as important as breakfast and needs to be stressed. Sando and Patton[7] report that in a survey of 472 schools in Ohio, only 45 or 50 percent of the children were served where lunch room meals were available. This study demonstrated that of 486 lunches rated for food values that only 8 percent showed good, 31 percent were fair and 61 percent were poor. They also showed that the plate waste was less in schools where there was a nutrition education program, and that there was no significant difference between the waste of students who had chosen a plate lunch or a la carte dishes.

* Interpolated from Recommended Dietary Allowances—Revised 1953

Food consumed is a more reliable criterion than food served. Students seemed to like sandwiches, main dishes, and desserts.[8] Sandwiches should be tasty, nutritious, and must contain protein foods. Main dishes should contain two protein foods, fruits, and vegetables, and a glass of milk makes the third protein food and completes the lunch. A county feed store once advertised with a slogan, "If you feed feed, feed good feed." Why should we not say to school cafeteria managers, "If you serve food, serve good food."

Great stress should be placed on the importance of milk in the diet of school children, but it should be part of a mixture of foods calculated to supply the protein and caloric requirement of each child. One quart of milk supplies, roughly, 30 grams of protein, 40 grams of fat, 50 grams of carbohydrates, 700 calories, and furnishes a school child with one-third to one-half the total protein requirement and from one-fifth to nearly one-half the total daily caloric requirement.

Not all children can and will drink milk. Some are allergic, unfortunately. It is difficult for children to obtain the daily required amount of protein, vitamins, calcium, and other minerals unless they drink milk. If milk is served at school, it must be of high quality, pasteurized, and should be served cold, preferably between 40° and 45°F.

Whole milk is the only beverage that should be served school children. Those schools that serve flavored drinks, carbonated beverages, etc., are depriving their children of needed nutrients. Buttermilk and skimmed milk may be made available to teachers and certain secondary school children.

Candy is sold at nearly all schools. If school children are going to eat candy, why not sell only those candies that contain, among other things, protein. For instance, five cent candy bars that contain milk, egg white, and peanuts, or peanut butter, usually produce 4 to 6 grams of protein and aid in attaining the child's daily protein requirement.

Schools should not sell chewy or hard candy and children should be told that candies which stay in the mouth for long periods promote tooth decay. School children should be fed an adequate and complete diet at breakfast and lunch so that eating between meals can be reduced to a minimum and dental caries can be lessened or perhaps prevented.

As pointed out by Rita Campbell,[9] school children are at a vulnerable age, one of rapid growth and development and of great

activity. Their food needs are most demanding and if they are not met, they may create nutritional problems. Proper food habits, developed early in life, may contribute greatly towards the child's health and happiness as an adult.

Our knowledge of nutrition seems adequate but the application is not easy. The greatest problem we face is how we can cause a change in the food habits of our school children. Many bad dietary habits are developed in the home prior to attending school and new ideas are not readily accepted by the parents. Have we really taught proper nutrition unless we cause some changes to be made in food habits?

Again, I say, that education is our best weapon for attack to the problem of poor eating habits of school children. It is as important for school children to learn to eat the right kinds of food as it is for them to learn reading, writing, and arithmetic. As more school children are being served their noon meal, school lunches become increasingly important to the nutrition and health of our children. Here is a grand opportunity to teach good eating habits and to introduce some new and nutritious foods to about one-fifth of our nation's population.

Some teachers make paper facsimiles of the various foods that are served in the school cafeteria. Then, each day, she checks the menu and places before the class the kinds of foods to be served and the price of each. Just before noon she makes suggestions for food selections and give her reasons why. This should be done from the first grade through the twelfth grade.

Young and others[10] have shown that school children up to age nine have a better nutrient intake, according to standards than pupils ten to fifteen years old. Adolescent girls, thirteen to fifteen years of age eat a diet lower in protein, iron, thiamine, riboflavin, niacin, and ascorbic acid than do the adolescent boys. These same finicky girls will some day become mothers and are sure to teach their children poor eating habits. Therefore, nutritional education of older girls for the responsibility of motherhood is of paramount importance.

The increasing number of teen-age girls who are assuming the responsibility of motherhood today poses a real challenge to parents, physicians, and health authorities to see that nutritional needs are met in full measure during each epoch of life so that the forthcoming generation may be healthy in mind and body.

If the women of our nation would like a project, I can think of none more important than to develop good eating habits and teach them to their children.

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Contact the Executive Secretary of the American School Health Association, Dr. A. O. DeWeese, Kent State University, Kent, Ohio.

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